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Experiences and good practices from Greece


Elpida Kolokytha & Skoulikaris Charalampos (Haris)
Aristotle University of Thessaloniki


Workshop on the sustainability of the SWARM results
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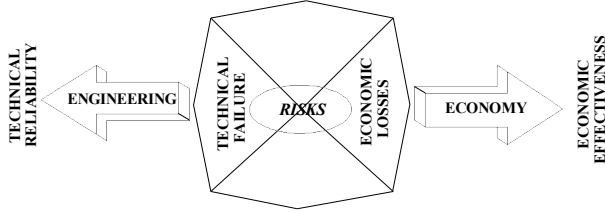
Strengthening of master curricula in water resources management for the Western Balkans HEIs and stakeholders
Project number: 597888-EPP-1-2018-1-RS-EPPKA2-CBHE-JP



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The road to sustainability...

□ Until the end of the 20th century **Water Resources Management** was, almost exclusively, oriented to hydrotechnical works focusing on the technical reliability and economic efficiency of projects that covered human's water demands and securing human's life and wealth.



TECHNICAL RELIABILITY ← ENGINEERING → RISKS ← ECONOMY → ECONOMIC EFFECTIVENESS

TECHNICAL FAILURE
ECONOMIC LOSSES

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The road to sustainability...

- ❑ The transition from this dipole development scheme to the current one, where environmental protection and social prosperity forms part of the development equation, emerged with the **sustainable development concept** (in 1987).

“Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”
- ❑ United Nations’ Millennium Declaration identified principles and treaties on sustainable development, including **economic development**, **social development** and **environmental protection**, a concept that was adopted in WRM.

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The road to sustainability...

- ❑ At the same period, **integrated water resources management (IWRM)** established a multidisciplinary and multisectoral approach on setting the management of waters as part of a system rather than an autonomous process.

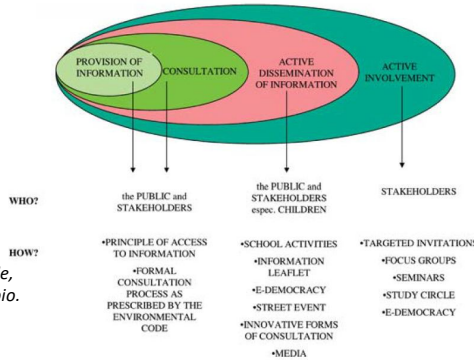
“IWRM is a process which promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.”

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The road to sustainability...



□ One of the latest advancements is attributed to public participation on water management decision making processes, also known as stakeholders' participation, which plays an important role to the water management contemporary era.



WHO?	the PUBLIC and STAKEHOLDERS	the PUBLIC and STAKEHOLDERS espec. CHILDREN	STAKEHOLDERS
HOW?	<ul style="list-style-type: none"> •PRINCIPLE OF ACCESS TO INFORMATION •FORMAL CONSULTATION PROCESS AS PRESCRIBED BY THE ENVIRONMENTAL CODE 	<ul style="list-style-type: none"> •SCHOOL ACTIVITIES •INFORMATION LEAFLET •E-DEMOCRACY •STREET EVENT •INNOVATIVE FORMS OF CONSULTATION •MEDIA 	<ul style="list-style-type: none"> •TARGETED INVITATIONS •FOCUS GROUPS •SEMINARS •STUDY CIRCLE •E-DEMOCRACY

Figure's source: Jonsson A. Public participation in water resources management: stakeholder voices on degree, scale, potential, and methods in future water management. Ambio. 2005 Nov;34(7):495-500. PMID: 16435737.

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Water Framework Directive


Water Framework Directive (WFD) 2000/60 is considered to be one of the most ambitious and comprehensive pieces of European environmental legislation to date.

The WFD aims at the integrated management and protection of the water resources

- **New management unit, the river basin**
- **Identifying and analyzing of environmental pressures and risks at river basin scale,**
- **Integrating all types of waters**
- **Identifying water bodies and protected areas**
- Creation of monitoring networks for water resources (Article 8)
- Defining environmental objectives, classification systems and environmental standards
- Creation and storage of environmental data in geodatabases with use of GIS
- **Stakeholders participation (Article 14)**


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Water Districts in Greece


The harmonization of the Greek legislation with the Water Framework Directive 2000/60/EC was made by the Law 3199/2003 (Government Gazette 280 A/09.12.2003) and the Presidential Decree 51/2007 (Government Gazette 54 / A / 08.03.2007).



WD 01: WESTERN PELOPONNESE
WD 02: NORTHERN PELOPONNESE
WD 03: EASTERN PELOPONNESE
WD 04: WESTERN STEREA HELLAS
WD 05: HEPEIROS
WD 06: ATTICA
WD 07: EAST STEREA HELLAS
WD 08: THESSALY
WD 09: WESTERN MACEDONIA
WD 10: CENTRAL MACEDONIA
WD 11: EASTERN MACEDONIA
WD 12: THRACE
WD 13: CRETE
WD 14: AEGEAN ISLANDS

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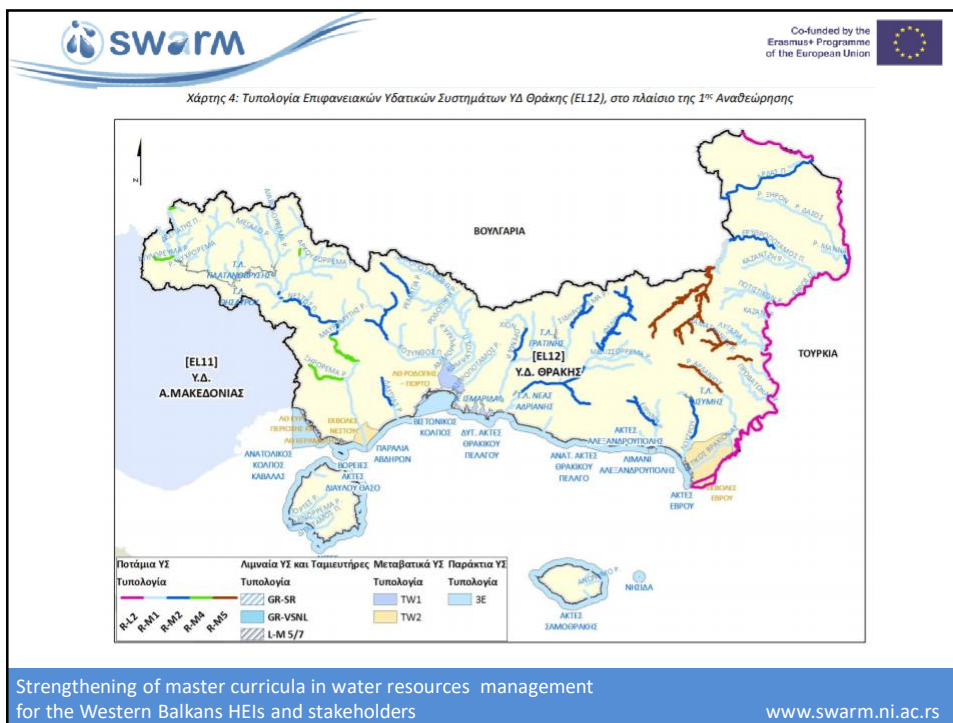
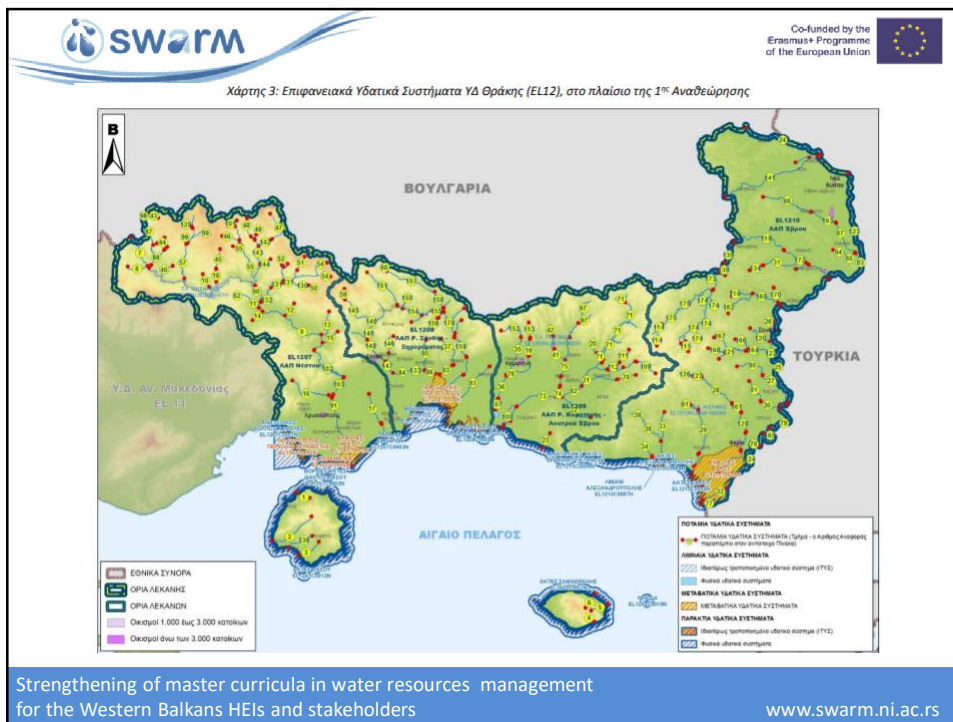
WFD implementation process

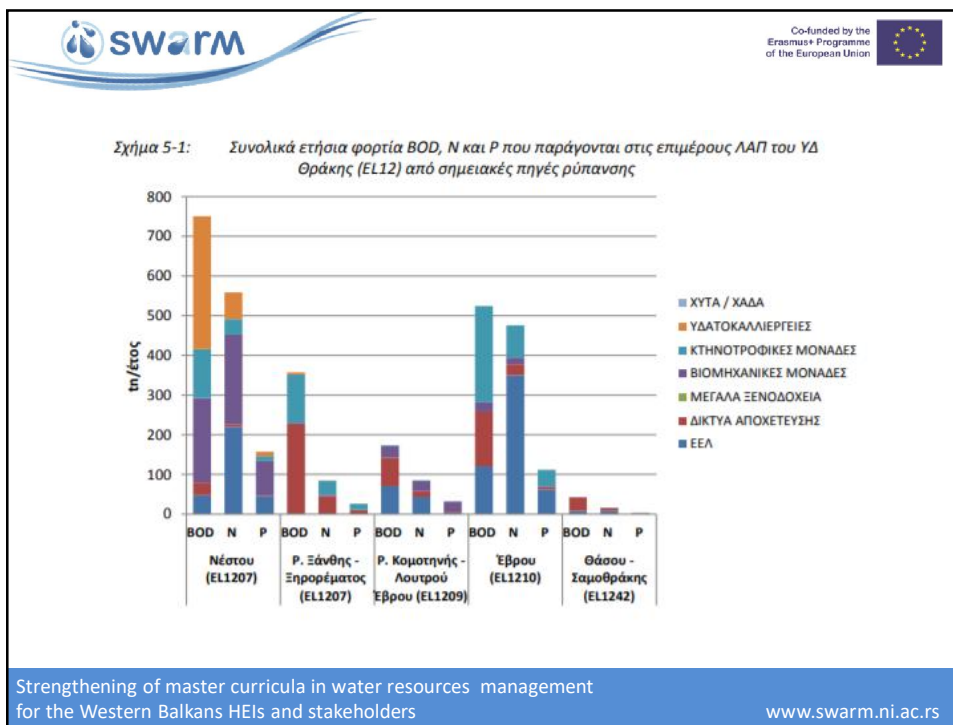
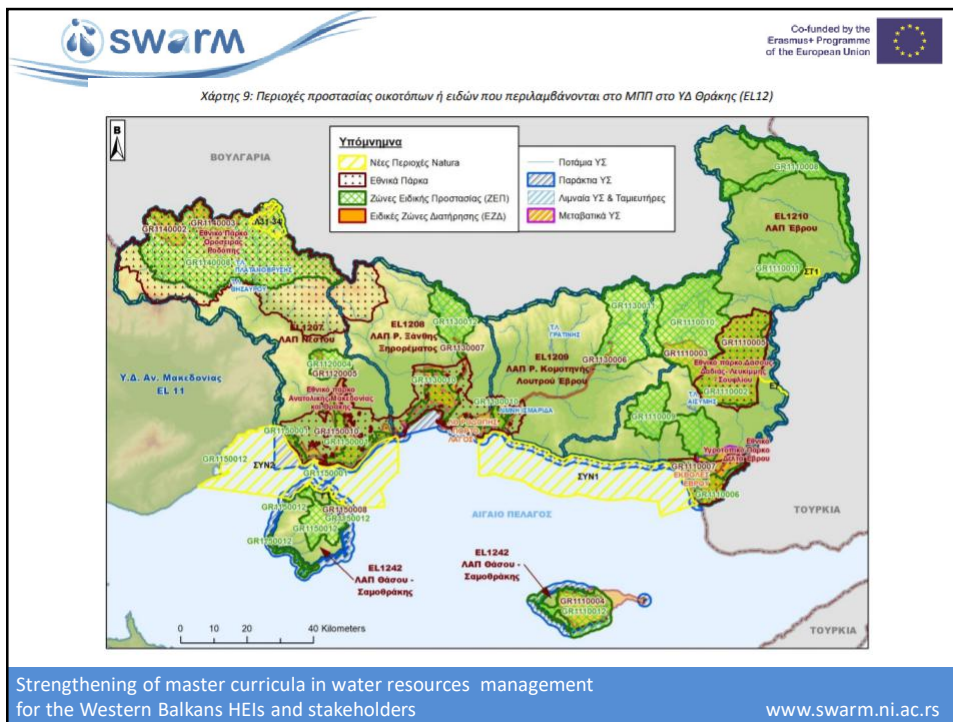
In each of the 14 Water Districts, National Water Management Plans, namely **River Basin Management Plans (RBMPs)**, were developed for every single one of them.

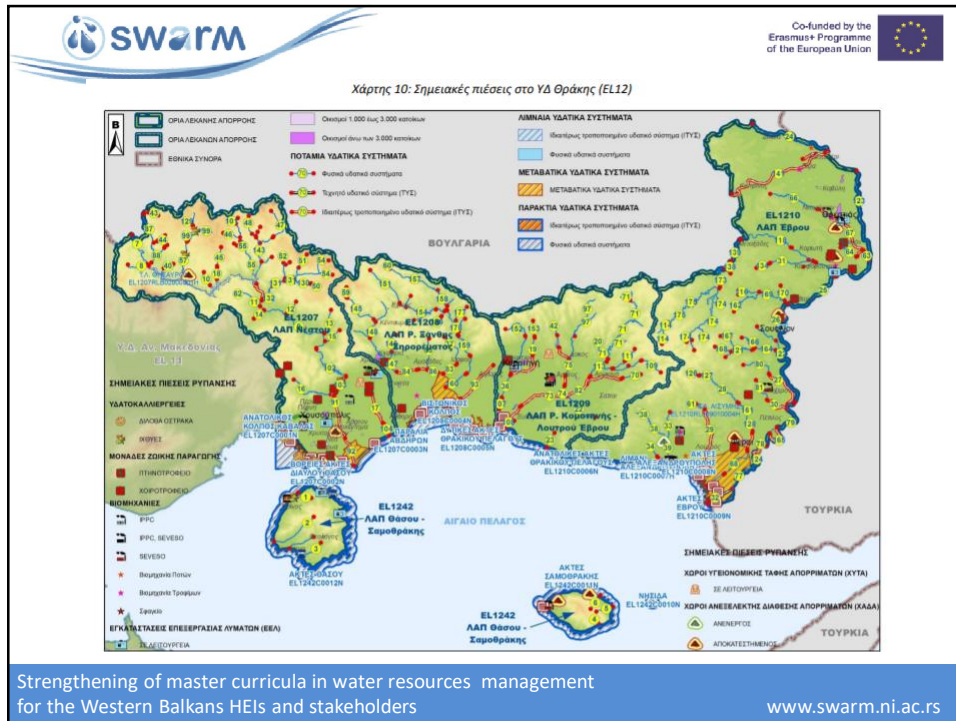
The implementation of the WFD includes the following main components:

1. Assessment of the current situation
2. Organization of environmental objectives
3. Preparation of Monitoring Programs
4. Gap analysis
5. Establishment of the Program of Measures
6. Development of National Management Plans
7. Implementation of Program of Measures
8. Evaluation of the Program of Measures
9. Consultation with the public, active involvement of stakeholders

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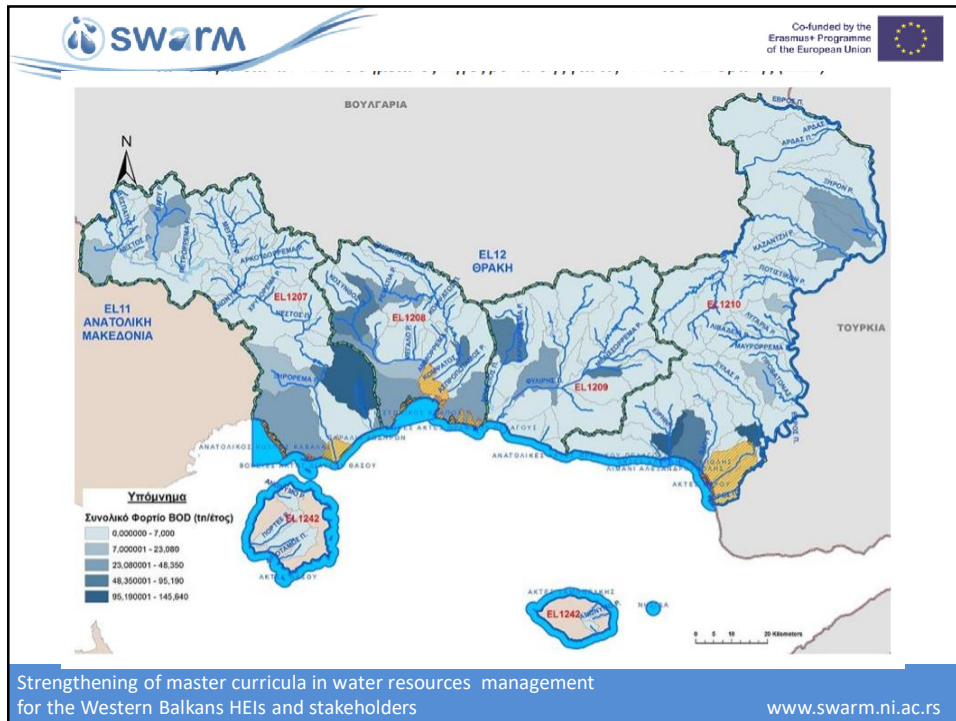






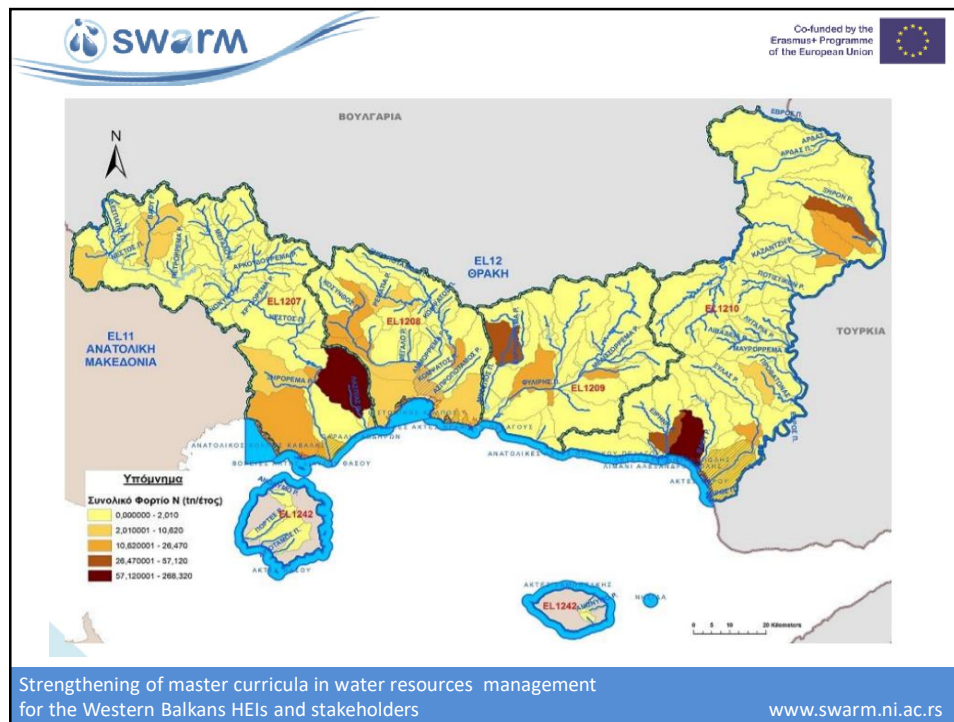
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National water monitoring

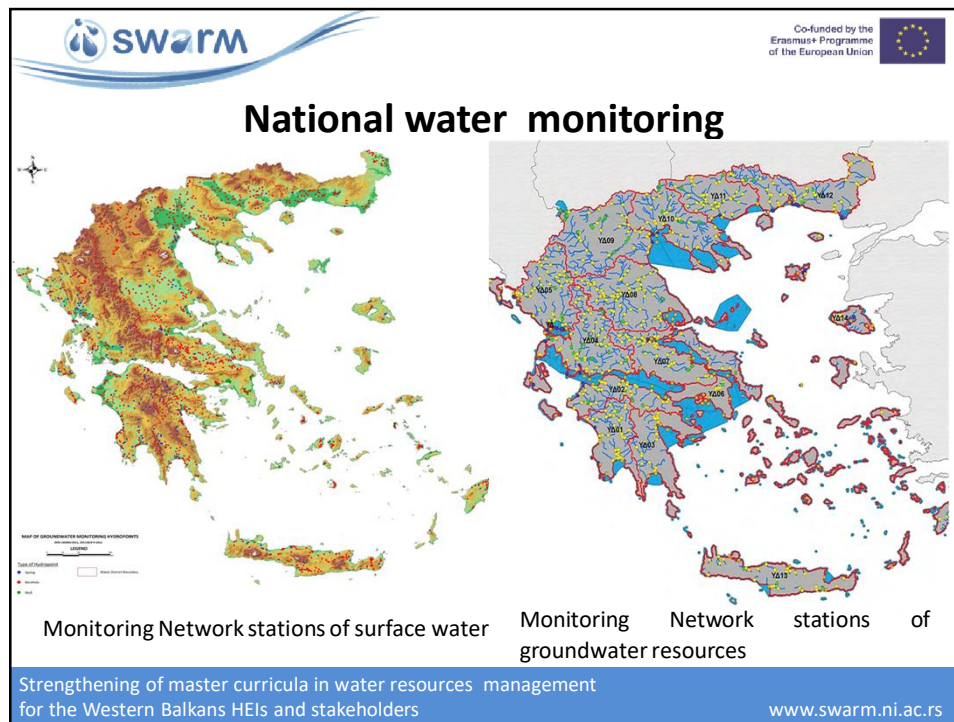
In line with the provisions of the WFD, Greece has established and recently revised a national monitoring program for the assessment of the status of surface water and ground water, in order to obtain a coherent and comprehensive overview of water status within each river basin district.

The **National Water and Quality Monitoring Network** of the country was completed through the adoption of the Joint Ministerial Decision on **September 9, 2011** (Government Gazette 2017 B 09.09.2011)

The National Monitoring Network comprises 449 surveillance and monitoring stations in rivers, 53 stations in lakes, 34 in transitional waters, 80 stations in coastal waters and 1,392 stations in groundwaters. **The total number of stations is 2008**, from which 616 refer to surface waters and 1,392 to groundwaters).

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The slide features the 'swarm' logo at the top left and the text 'Co-funded by the Erasmus+ Programme of the European Union' with the European Union flag at the top right. The main title is 'Flood Directive'. The text below explains the Directive 2007/60/EC and its implementation in Serbia.



Flood Directive

The Directive 2007/60/EC is carried out in coordination with the Water Framework Directive, notably by flood risk management plans and river basin management plans being coordinated, and through coordination of the public participation procedures in the preparation of these plans.

All assessments, maps and plans is made available to the public. The K.Y.A. H.Π. 31822/1542/E103/2010 (ΦΕΚ 1108 Β'/2010) is the Joint Ministerial Decision which incorporated into the national law the Community Directive 2007/60 / EC of the European Parliament and of the Council of 23 October 2007 on "Evaluation and Managing Flood Risks".

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Flood Directive

In the context of the flood risk management plans, a special methodology for flood risk assessment was developed and applied in all River Basin Districts.

The aim is the evaluation of **flood risk within the flooded areas** as they came out from the hydraulic analysis performed for different return periods (T50, T100 και T1000), taking into consideration the flood hazard (depths, flow rate) and the vulnerability (based on potential impacts) of uses and activities in the flooded areas.

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Flood Directive

Taking into consideration the provisions of the Directive 2007/60/EC and the relevant guidelines, **the following General Targets** were determined at a national level during the 1st cycle of implementation of the Directive 2007/60/EC:

- Moderation of the exposure to flood
- Reduction of the possibility of flood
- Enhancement of preparedness for flood response
- Improvement of restoration mechanisms for the affected areas

For the achievement of the General Targets, there is a **Program of Measures in the Flood Risk Management Plans** for each River Basin District that covers all management aspects.

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Transboundary water management

In Greece about 25% of surface waters in the form of lakes and rivers are transboundary waters which extend or come from our neighboring countries Bulgaria, Albania, North Macedonia and Turkey.

The UNECE Water Convention constitutes the overarching legal and institutional framework of transboundary water cooperation in the European Union.

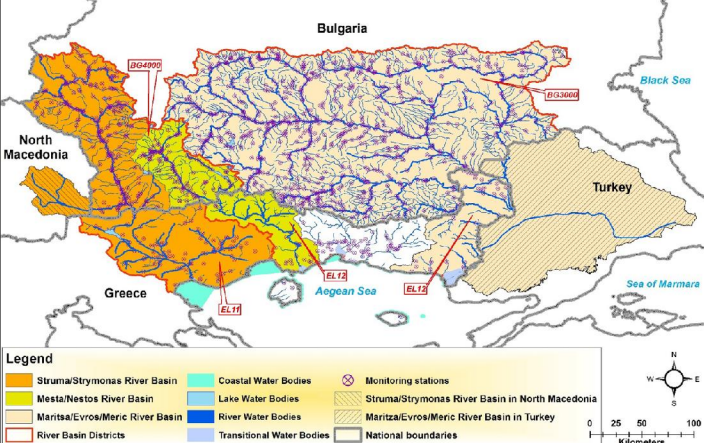
The WFD refers to transboundary river basin management denoting that if both countries are Members of EC they should develop a common management plan along the whole water basin whereas if the transboundary water basin is shared between EU and non EU countries they can develop separate management plans according to their respective legislation.

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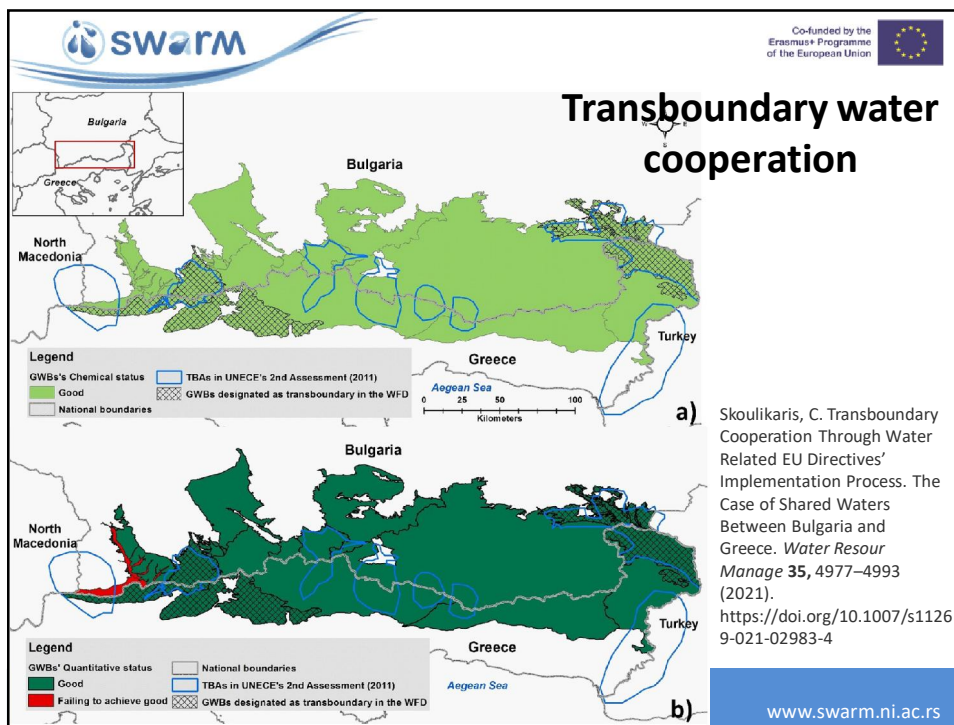
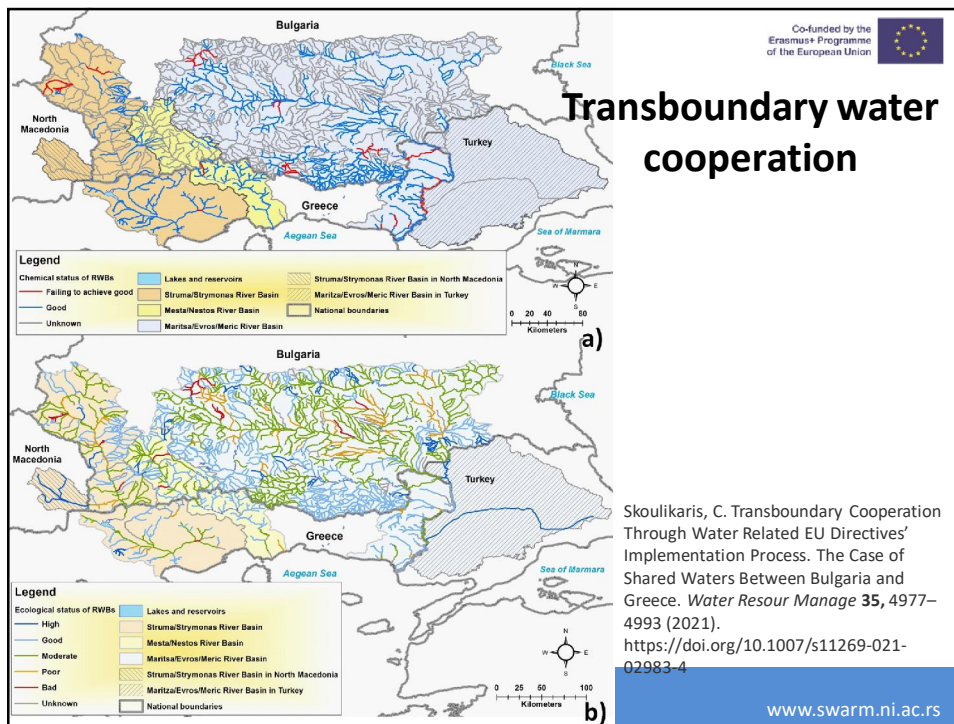
Transboundary water management

The transboundary water resources shared between Bulgaria and Greece constitute a characteristic example where downstream water related problems, such as induced floods and water quality degradation, are attributed to manmade pressures on the upstream water resources (UNECE 2011).



Skoulikaris, C. Transboundary Cooperation Through Water Related EU Directives' Implementation Process. The Case of Shared Waters Between Bulgaria and Greece. *Water Resour Manage* 35, 4977–4993 (2021). <https://doi.org/10.1007/s11269-021-02983-4>

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